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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/720,009	11/21/2003	Ole Kirkeby	915-005.080	2779

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EXAMINER

PAUL, DISLER

ART UNIT	PAPER NUMBER
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2615

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12/20/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/720,009	Applicant(s) KIRKEBY, OLE	
	Examiner Disler Paul	Art Unit 2615	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-24 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>1/16/3/17/04 and 1/21/03</u> . | 6) <input type="checkbox"/> Other: ____ |

DETAILED ACTION

Response to Arguments

1. Applicant's arguments, in regard to the headphone have been fully considered and are persuasive. This new office action is now non-final.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-4,7-12,14,17-24 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirkeby ("US 6,771,778 B2") and Fincham ("US 2002/0154783 A1").

Re claim 1, Kirkeby discloses a method comprising: forming left and right channel signal paths in stereophonic processing of the left and right channel input signals into left and right channel output signals for stereophonic headphone listening ("fig.2-7/ input channel(L,R) to be output/stereophonic process at (7,8); col.1 line 5-10"), and forming at least one delay introducing a cross-talk signal path between the left and right channel signal paths ("fig.7/delay cross-talk(2,5;4,6); fig.6"), However, Kirkeby fail to disclose the step of forming a separate monophonic signal path in order to equalize

a frequency spectrum of a monophonic component of the left and right channel output signals by at least extracting from the left and right channel input signals.

Fincham discloses a sound reproduction of left and right speakers in which there is a formation of separate monophonic signal path in order to equalize a frequency spectrum of a monophonic component of the left and right channel output signals by at least extracting from the left and right channel input signals ("fig.9-1/extract inputs(940) to be equalized (945) to be output at (947); page 5[0048] line 19-21/please not single channel (940-947) used in creating/reproducing the single denotes monophonic ; further see fig.12wt (1213)/monophonic detector") for the purpose of achieving optimal sound quality.

Therefore, taking the combine teaching of Kirkeby and Fincham as a whole, one skill in the art would have found it obvious to modify Kirkeby to incorporate the forming a separate monophonic signal path in order to equalize a frequency spectrum of a monophonic component of the left and right channel output signals by at least extracting from the left and right channel input signals for the purpose of achieving optimal sound quality.

The combined teaching of Kirkeby and Fincham as a whole, further disclose an at least substantially monophonic signal component contained in said signals ("Fincham, fig.9-1/940"), processing the monophonic signal component to obtain a processed signal component,

Art Unit: 2615

wherein the processing includes adjustment of the gain of said monophonic signal component ("Fincham, fig. 9-1/(940, 942) served as the processor and gain adjustment page 5 par [0048]"), and combining said processed monophonic signal component with at least one of the left and the right channel output signals ("Fincham, fig. 9-1/947, page 5 [0051] line 1-6").

Re claim 2, the method according to claim 1, wherein the at least substantially monophonic signal component is extracted from the left and right input signal ("fig. 9 (940)"), However, the combined teaching of Kirkeby and Fincham as a whole, fail to disclose of the further limitation wherein the monophonic signals are based on a momentary average value $(L+R)/2$ of said signals. However, official notice is taken that the limitation of monophonic signals are based on a momentary average value $(L+R)/2$ of said signals is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to modify the teaching of Kirkeby and Fincham as a whole, by incorporating the monophonic signals are based on a momentary average value $(L+R)/2$ of said signals for the purpose of achieving maximum sound quality.

Re claim 3, the method according to claim 1, wherein the at least substantially monophonic signal component is extracted from the left and right channel input signals ("fig.9"), However, the combined teaching of of Kirkeby and Fincham as a whole, fail to disclose of the signals based on similarity between said signals. However, official notice is taken that the limitation of monophonic signals based on similarity between said signals is commonly known in the art, thus it would have been obvious for one of the ordinary skill in the art to modify the teaching of Kirkeby and Fincham as a whole, by incorporating the monophonic signals based on similarity between said signals for the purpose of achieving maximum sound quality.

Re claim 4, the method according to claim 1, wherein the processing of the monophonic signal component includes processing of a frequency spectrum of said monophonic signal component ("Fincham, fig.9-2/942").

Re claim 5, the method according to claim 4, wherein the processing of the frequency spectrum of said monophonic signal component is performed substantially within a frequency range ranging from 500 Hz to 2 kHz ("Fincham, page 7 [0060] line 9-11; page 8 [0069] line 1-5").

Re claim,6, The method according to claim 1, wherein the processing of the monophonic signal component includes adjustment of

Art Unit: 2615

the gain of said monophonic signal component ("Fincham, page 50049]
line 20-23, fig.9-1/(942); fig.9-2/(942)-adjustable gain")

Re claim 7, the method according to claim 6, wherein the adjustment of the gain is performed in a time varying manner ("Fincham, fig.9-2/(942'); page 5[0050] line 23-26").

Re claim 8, The method according to claim 1, wherein the processing of the monophonic signal component includes adding a delay to said monophonic signal component ("fig.1/(5,6)").

Re claim 9-12, in regard to a signal processing device, have been analyzed and rejected with respect to claim 1-4 respectively.

Re claim 14,17, have been analyzed and rejected with respect to claim 5,8 respectively.

Re claim 18, the device according to claim 9, wherein the device is a digital signal processing device ("Kirkeby, fig.1, page 11 line 5-12"),

Re claim 19, A computer program in stereo widening or corresponding spatial signal processing of stereo format signals to

process said signals to become suitable for headphone listening, has been analyzed and rejected with respect to claim 1.

Re claim 20, has been analyzed and rejected with respect to claim 18.

Re claim 21, in regard to a mobile appliance with audio capabilities, has been analyzed and rejected with respect to claim 1.

Re claim 22, A mobile appliance according to claim 21, comprising a portable digital player or a digital mobile telecommunication device ("Fincham, page 8 [0071] line 5-9); page 7 [0066] line 1-10").

Re claim 23, Kirkerby disclose of a device, comprising: at least left and right channel paths in order to process the left and right channel input signals into left and right channel output signals suitable for stereophonic headphone listening, and at least one delay introducing a cross-talk signals path between the left and right channel signal path ("fig.1,4-5"), However, Kirkeby fail to disclose of the wherein the device further comprises a separate monophonic signal path in order to equalize a frequency spectrum of a monophonic component of the left and right channel output signals. Fincham discloses a sound reproduction of left and right speakers wherein the device further comprises a separate monophonic signal path in order to equalize a frequency spectrum of a monophonic component of the left

Art Unit: 2615

and right channel output signals ("fig.9-1/extract inputs(940) to be equalized (945) to be output at (947); page 5[0048] line 19-21/please not single channel (940-947) used in creating/reproducing the combined signals denotes monophonic") for the purpose of achieving optimal sound quality. Therefore, taking the combine teaching of Kirkeby and Fincham as a whole, one skill in the art would have found it obvious to modify Kirkeby to incorporate the device further comprises a separate monophonic signal path in order to equalize a frequency spectrum of a monophonic component of the left and right channel output signals for the purpose of achieving optimal sound quality.

The combined teaching of of Kirkeby and Fincham as a whole, further disclose of the monophonic signal path comprising at least means for extracting from the left and right channel input signals an at least substantially monophonic signal component contained in said signals an at least substantially monophonic signal component contained in said signals("fig.9 (940)"), means for processing the monophonic signals component to obtain a process monophonic signal component, the processing including adjusting the gain of said monophonic signal component ("fig.9(942,945)"), and means for combining said process monophonic signal component with at least one of the left or right channel output signals ("fig.9*947)").

Re claim 24, the device according to claim 23, wherein the means for processing the monophonic signal component include means for processing of a frequency spectrum of said monophonic signal component ("fig. 9(942)").

3. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kirkeby ("US 6,771,778 B2") and Fincham ("US 2002/0154783 A1") and further in view of Kirkeby ("US 2004/0136554").

Re claim 13, the device according to claim 12, However, the combined teaching of Kirkeby and Fincham as a whole, fail to disclose of the wherein said signal processor comprise the filter being digital Infinite Impulse Response or a Finite Impulse Response filter, However, Kirkey disclose of a processing system wherein the signal processor comprise the filter being digital Infinite Impulse Response or a Finite Impulse Response filter ("kirkeby,fig.5) for the purpose of providing the desirable delay in obtaining the good stereo widening with minimal spectral coloration. Thus, taking the combined teaching of (old and new) Kirkeby and Fincham as a whole, it would have been obvious for one of the ordinary skill in the art to have modify the combined teaching of (old) Kirkeby and Fincham as a whole, by incorporating the signal processor comprise the filter being digital

Art Unit: 2615

Infinite Impulse Response or a Finite Impulse Response filter for the purpose of providing the desirable delay in obtaining the good stereo widening with minimal spectral coloration.

4. Claim 6-7,15-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kirkeby ("US 6,771,778 B2") and Fincham ("US 2002/0154783 A1") and further in view of official notice.

Re claim,6, The method according to claim 1, wherein the processing of the monophonic signal component includes adjustment of the gain of said monophonic signal component ("Fincham, page 50049] line 20-23, fig.9-1/(942); fig.9-2/(942)-adjustable gain"), However, the combined teaching of Kirkey and Fincham as a whole, fail to disclose of the limitation wherein the gain being explicitly 5db, however official notice is taken, such limitation of adjusting the gain to of particular 5db is simply the inventor's preference, thus, it would have been obvious for one of the ordinary skill in the art to have incorporated such limitation wherein the gain adjustment to being precisely 5 db for the purpose of creating spatial effect over the headphone.

Re claim 7, the method according to claim 6, wherein the adjustment of the gain is performed in a time varying manner ("Fincham, fig. 9-2/(942'); page 5[0050] line 23-26").

Re claim 15-16, have been analyzed and rejected with respect to claim 6-7 respectively.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Disler Paul whose telephone number is 571-270-1187. The examiner can normally be reached on 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Chin Vivian can be reached on 571-272-7848. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.


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PRIMARY EXAMINER